

WHAT IS CLAIMED IS:

1. An electrostatic dry developer composition for use in the development of electrostatic latent images, the developer composition comprising a mixture of charged toner particles and oppositely charged carrier particles comprised of a hard magnetic material, the toner particles having dispersed on the outer surfaces thereof silica particles having a BET surface area of greater than about 50 m²/g.
2. The developer composition of Claim 1 wherein the silica is a hydrophobic silica, the silica particles having a BET surface area of greater than about 50 m²/g prior to a hydrophobizing surface treatment of the silica particles.
3. The developer composition of Claim 2 wherein the silica is a hydrophobic silica that has been surface treated with dichlorodimethylsilane, silicone oil, or hexamethyldisilazane.
4. The developer composition of Claim 2 wherein the silica particles have a BET surface area of from about 100 to about 410 m²/g prior to the hydrophobizing surface treatment of the silica particles.
5. The developer composition of Claim 1 wherein the silica is a hydrophilic silica.
6. The developer composition of Claim 1 wherein the silica has a BET surface area of from about 100 to about 410 m²/g.

7. The developer composition of Claim 1 wherein the toner particles have an average particle size of from about 4 to 12 μm .
8. The developer composition of Claim 1 wherein the amount of silica employed is from about 0.1 to about 5 weight percent, based on total weight of the toner particles.
9. The developer composition of Claim 1 wherein the amount of silica employed is from about 0.4 to about 2 weight percent, based on total weight of the toner particles.
10. The developer composition of Claim 1 wherein the amount of silica employed is from about 0.5 to 1.7 weight percent, based on total weight of the toner particles.
11. The developer composition of Claim 1 wherein the hard magnetic material is a hard magnetic ferrite.
12. The developer composition of Claim 11 wherein the hard magnetic ferrite is strontium ferrite.
13. The developer composition of Claim 1 wherein the toner particles have an initial charge to mass ratio (Q/m) when used in an electrographic process, the silica particles being employed in an amount sufficient to maintain a Q/m value of at least 50% of the initial Q/m value as the developer composition is used in the electrographic process.

14. The developer composition of Claim 13 wherein the silica particles are employed in an amount sufficient to maintain a Q/m value for the toner of at least 90% of the initial Q/m value.

15. The developer composition of Claim 13 wherein the silica particles are employed in an amount sufficient to maintain a Q/m value greater than the initial Q/m value.

16. The developer composition of Claim 1 wherein the silica particles are used in an amount sufficient to maintain a toner dust level of less than 5 g/hr.

17. The developer composition of Claim 1 wherein the silica particles are used in an amount sufficient to maintain a toner dust level of less than about 0.5 g/hr.

18. The developer composition of Claim 1 wherein the silica particles are used in an amount sufficient to maintain a toner dust level of less than about 0.1 g/hr.

19. A method for development of an electrostatic image comprising contacting the image with at least one magnetic brush comprising (a) a rotating magnetic core of a pre-selected magnetic field strength, (b) an outer nonmagnetic shell disposed about the rotating magnetic core, and (c) an electrographic developer composition disposed on an outer surface of the shell and in contact with the image, the developer composition comprising a mixture of charged toner particles and oppositely charged carrier particles comprised of a hard magnetic material, the toner particles having dispersed on the outer surfaces thereof silica particles with a BET surface area of greater than about 50 m²/g.

20. The method of Claim 19 wherein the silica is a hydrophobic silica, the silica particles having a BET surface area of greater than about 50 m²/g prior to a hydrophobizing surface treatment of the silica particles.

21. The method of Claim 20 wherein the silica is a hydrophobic silica that has been surface treated with dichlorodimethylsilane, silicone oil, or hexamethyldisilazane.

22. The method of Claim 20 wherein the silica particles have a BET surface area of from about 100 to about 410 m²/g prior to the hydrophobizing surface treatment of the silica particles.

23. The method of Claim 19 wherein the silica is a hydrophilic silica.

24. The method of Claim 19 wherein the silica has a BET surface area of from about 100 to about 410 m²/g.

25. The method of Claim 19 wherein the toner particles have an average particle size of from about 4 to 12 μm.

26. The method of Claim 19 wherein the amount of silica employed is from about 0.1 to about 5 weight percent, based on total weight of the toner particles.

27. The method of Claim 19 wherein the amount of silica employed is from about 0.4 to about 2 weight percent, based on total weight of the toner particles.
28. The method of Claim 19 wherein the amount of silica employed is from about 0.5 to 1.7 weight percent, based on total weight of the toner particles.
29. The method of Claim 19 wherein the hard magnetic material is a hard magnetic ferrite.
30. The method of Claim 29 wherein the hard magnetic ferrite is strontium ferrite.
31. The method of Claim 19 wherein the toner particles have an initial charge to mass ratio (Q/m) during use of the developer composition in an electrographic process, the silica particles being employed in an amount sufficient to maintain a Q/m value for the toner of at least 50% of the initial Q/m value as the developer composition is used in the electrographic process.
32. The method of Claim 31 wherein the silica particles are employed in an amount sufficient to maintain a Q/m value greater than the initial Q/m value.
33. The method of Claim 19 wherein the silica particles are used in an amount sufficient to maintain a toner dust level of less than about 5 g/hr.

34. The method of Claim 19 wherein the silica particles are used in an amount sufficient to maintain a toner dust level of less than about 0.5 g/hr.

35. The method of Claim 19 wherein the silica particles are used in an amount sufficient to maintain a toner dust level of less than about 0.1 g/hr.

Add
Ar

005391.034101
TOTAL 2.765860